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SOCIAL CAPITAL AND POVERTY

by Paul Collier

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FOREWORD

There is growing empirical evidence that social capital contributes significantly to sustainable development. Sustainability is to leave future generations as many, or more, opportunities as we ourselves have had. Growing opportunity requires an expanding stock of capital. The traditional composition of natural capital, physical or produced capital, and human capital needs to be broadened to include social capital. Social capital refers to the internal social and cultural coherence of society, the norms and values that govern interactions among people and the institutions in which they are embedded. Social capital is the glue that holds societies together and without which there can be no economic growth or human well-being. Without social capital, society at large will collapse, and today's world presents some very sad examples of this.

The challenge of development agencies such as the World Bank is to operationalize the concept of social capital and to demonstrate how and how much it affects development outcomes. Ways need to be found to create an environment supportive of the emergence of social capital as well as to invest in it directly. These are the objectives of the Social Capital Initiative (SCI). With the help of a generous grant of the Government of Denmark, the Initiative has funded a set of twelve projects which will help define and measure social capital in better ways, and lead to improved monitoring of the stock, evolution and impact of social capital. The SCI seeks to provide empirical evidence from more than a dozen countries, as a basis to design better development interventions which can both safeguard existing social capital and promote the creation of new social capital.

This working paper series reports on the progress of the SCI. It hopes to contribute to the international debate on the role of social capital as an element of sustainable development.

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THE INITIATIVE ON DEFINING, MONITORING AND MEASURING SOCIAL CAPITAL

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SOCIAL CAPITAL AND POVERTY

ABSTRACT

Social capital is commonly studied from the perspective of sociology or political science. This paper investigates the concept from an economic perspective. I suggest that from the economic perspective, social capital is 'social' because it generates externalities arising from social interaction. Both the initiation of social interaction and its consequences generate effects which are not internalized into the decision calculus of each agent. Social capital is 'capital' only if its effects persist. Persistence can be either because the social interaction itself has some feature which makes it persistent, or because the effects are capable of outlasting the interaction which caused them.

Different parts of the literature on social capital focus on different economic benefits. I suggest that social capital is economically beneficial because social interaction generates one or other of three externalities. It facilitates the transmission of knowledge about the behavior of others and this reduces the problem of opportunism. It facilitates the transmission of knowledge about technology and markets and this reduces market failures in information. It reduces the problem of free-riding and so facilitates collective action. I distinguish between whether the social interaction is reciprocal or unidirectional; and whether it is organized or informal. For example, knowledge transmission may depend upon information pooling, which occurs through reciprocal interactions such as networks (informal) and clubs (organised), or upon copying, which only requires unidirectional interaction.

The implications of social capital for the poor can be expected to vary according to this typology. For example, the process of copying may be intrinsically equalizing, whereas networks may tend to exclude the poor because they have less knowledge to pool.

Because it generates externalities, social capital will be under-provided. The government's main policy handle in enhancing its provision is to reduce the costs of social interaction. It can do this by improving transport and communications infrastructure.

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INTRODUCTION

Most of the important issues in social capital concern measurement and policy instruments. However, a prior concern is conceptual. The literature which uses the term `social capital' is recent and disparate, ranging across various disciplines. While this has had considerable benefits of cross-fertilization, the subject area has yet to settle down into agreed definitions with a `map' which relates differing types of evidence analytically. Section 2 attempts to define social capital from basic economic theory, answering the questions `what is social about it?' and `what makes it capital?'. Section 3 extends the theoretical analysis by answering the question `how does it work?'. By the end of Section 3 we have a disaggregation of social capital according to the types of social interaction which form it, the way they form it, and how it raises incomes.

The resulting `map' has three building blocks: social interaction, its effects, and the mechanisms by which it has these effects. These appear throughout the paper. Each of these three building blocks is further sub-divided. I find it useful to distinguish between four types of social interaction: simple one way relations of an agent with others: networks, clubs, and hierarchical organizations. I distinguish between three types of effect, all involving externalities: those relating to knowledge, those relating to opportunistic behavior, and those relating to free-riding. I identify two mechanisms by which social interaction achieves each of these effects. The resulting schema is not the only way of conceptualizing social capital. However, greater simplicity would be at the price of leaving out some aspect on which there is already empirical evidence that a type of social interaction is having an economic effect. Greater complexity is always possible but would obviously have a price in terms of reduced accessibility.

Section 4 extends the analysis by allowing the amount of social interaction to be endogenous. Section 5 introduces a disaggregation between the social capital generated by civil society and that supplied by government. The focus of the paper is on the former, and many people restrict the term social capital to civil social capital. As long as clear analytic distinctions are made, the usage of the term is of little consequence. I then turn to the measurement and empirical application of the analytic concepts, at the micro-level of household and firm studies (Section 6), and at the aggregate level of regressions on internationally comparable data (Section 7). The final three sections turn to policy. Section 8 discusses examples of when social capital can be damaging. Section 9 considers how policy should respond to the more usual case of when civil social capital is useful but under-provided. Section 10 focuses on the implications for poverty.

DEFINING SOCIAL CAPITAL

Social capital, to be meaningful, must have features which distinguish it from other forms of capital, because it is `social`, and which distinguish it from other forms of `social` behavior because it is capital. I first consider what makes it social and then consider what makes it capital.

What is `Social` About Social Capital?

Social capital is called `social` because it involves people being sociable. However, there is a further potential meaning of more interest to economists: it can be social because it arises from some non-market interaction of agents which nevertheless has economic effects. The economic effects are consequently not `internalized` into the decision calculus of each agent by the prices faced in markets. In the language of economics, they are `externalities`. I am going to argue that social capital is usually characterized by a triple involvement with externalities. Two of these are intrinsic, and so defining features of social capital, while the third is common, but not essential and so not a defining feature. First, the *initiation* of social interaction always involves an externality (`it takes two to tango`). Secondly, the social interaction has an economic effect which is not mediated through the market. Thirdly, usually, this economic effect is not the primary purpose of the social interaction but is incidental or even unintended. The most famous example of social capital is probably Putnam's amateur choirs, an activity which is more common in Northern Italy than in Southern Italy. Consider how an amateur choir has each of these three features.

An amateur choir is a horizontal association, on Putnam's (1993) classification, and I will use the term `club` for short. *A choir cannot consist of a single singer and so its formation requires the surmounting of a coordination problem.* Thus, investment in setting up choirs in a society is subject to an externality in a way that investment in physical capital is not (since it can be purchased by individual decision). As a result of this externality society does not produce enough choirs, unlike other forms of capital. Note that this is before we allow for any externalities of the *effects* of choirs. If choirs turn out to be unrivalled organizations for the spread of information about healthy diets they will be doubly underprovided; if they make such a din that they keep the neighborhood awake, then their underprovision due to the externality involved in their formation may be offset by a countervailing externality. I now turn to the external effects of the choir.

According to Putnam an amateur choir has economic value because by participating in it people inadvertently learn to trust each other. The consequent reduction in opportunistic behavior reduces transactions costs. *The choir generates an externality: its members learn to trust each other even though this is not the purpose of their interaction.*

Finally, the generation of trust has externalities beyond the membership of the choir. Participants learn to trust not just other members of the choir but other members of society. *Hence, choirs even benefit non-participants.*

Thus, Putnam's amateur choir is involved with externalities in three ways: the externality to other potential members by the decision to join; the externality of mutual trust among members generated by the repeated social interaction for other purposes; and the externality conferred on non-members by a generalization of trust.

None of these features on its own is sufficient for a sensible definition of social capital. First, consider the externality involved in initiating any social interaction, whether or not it confers economic benefits. Since all social interaction involves externalities, it is always underprovided. However, once we detach the concept of social capital from external economic benefits we encounter problems. Suppose that amateur choirs have no benefit in terms of trust-building: they just sing. In this case, choirs are indeed social, but it is hard to conceive of them as capital. We might argue that the amateur singing is unrecorded national income, but if this were so, then so would be solo singing in the bath. Putnam is obviously not arguing for the intrinsic merit of song, but rather that social interaction has economic benefits.

Second, suppose that social capital covered any social interaction which had economic externalities. The choir is so noisy that people cannot sleep. This does not make the choir (negative) social capital. However, it cannot be defined so widely as to ignore social interaction.

Consider what would be implied by defining social capital as the stock of assets in an economy which generate output which would otherwise not be produced by the market. The output, V , is produced by factors of production, typically labor and capital:

$$(1) \quad V = V(L,K)$$

The capital used in V production might then be the definition for the social capital of the economy. It may take many forms, some of which will be marketable and others not. For example, the 'tragedy of the commons' can be overcome by securing individual claims, but the cost is the price of securing the claims. The invention of barbed wire drastically reduced the cost of securing claims to rangeland and transformed the pastoral economy of North America in the 19th century. In this sense, barbed wire was highly productive social capital. However, like most other capital, in equilibrium the value of barbed wire will equal its cost. It will not be underprovided, though like other capital its stock may differ between societies.

It is evident that a definition of social capital just in terms of capturing externalities does not generate a concept which is useful in the context of the present literature. Barbed wire is not what people mean by social capital and, further, underprovision is intrinsic to how the concept is used.

From the above examples it is clear that we cannot relax either the requirement that social capital should involve some externality of social interaction. However, social capital need not be confined to those social interactions which have unintended economic effects. Both choirs and tontines are social capital. Despite this, Putnam had an excellent reason to choose a form of social interaction in which the economic effects are incidental to the purpose of association. This is because in civil society the vast majority of social interactions which have economic effects are like this. There are three major exceptions: social interactions which are obviously purpose-designed for economic effects. The first of

these is government, which can be regarded as an arrangement for overcoming many of the problems of collective action, most notably through the creation of an agent with the power of taxation. The second is the firm: within the firm resources are allocated partly by non-market processes and this permits internalization of externalities. The third is the household: within the household resources are allocated by non-market processes which internalize externalities. However, it is generally sensible to work with a concept of civil social capital which excludes the activities of government, the internal organization of the firm, and the internal organization of the household, partly because we already have a huge corpus of work on them, and partly because they are so different from other social interactions. I will refer to the social interactions which exclude the organization of government and the internal organization of the firm and the household as ‘civil society’. Civil society thus includes the interaction of households, the interaction of firms, and the interaction between households and firms.

Even with this restriction, which excludes the three main purpose-designed types of organization for internalizing externalities, civil society still has many instances of social interaction which are purpose-designed to generate some externality. However, they face the obvious problem of free-riding. The reason why most of the economic effects achieved by the social interactions of civil society are unintended spin-offs from some association with a quite different purpose (such as entertainment or religion), is that these social interactions must be doing something else which makes participation worthwhile and so overcomes the free-rider problem. Few people will bother to found societies for the building of trust, and those which exist will have few members. They are likely to be boring and the bulk of the benefits of increased trust will accrue to others. Choirs actually deliver enjoyment to their members, which is why they are more common. Hence, it is not a necessary part of our definition of social capital that the economic benefits should be unintended, but simply a likely feature of the majority of the social interactions of civil society.

To summarize, social capital is social if it is a social interaction which has the effect of generating an externality. It will be underprovided, because the establishment of social interaction involves an externality, because many of the benefits accrue to non-participants, and because even those benefits which accrue to participants are likely to be unrecognized.

Why is Social Capital Capital?

For social capital to be meaningfully capital its economic effects must have some persistence. If each day the community meets and allocates the commons for the day there is a flow of social interaction producing a flow of externalities, but no meaningful stocks. This would more sensibly be termed *social labor* than social capital. Persistence can be intrinsic either to the social interaction, or to its effects. I consider them in turn.

The persistence of social interaction can be defined either in terms of its composition or its structure. For example, a marriage is designed to have persistence in terms of its composition: the same two people meet day after day. By contrast, a singles bar is a persistent structure of social interaction, although the actual composition of the interaction is constantly changing. Putnam would confine the concept of social capital to forms of social interaction which have compositional persistence. However, this is because he focuses upon the benefit of trust-building. There are other economic benefits of social interaction which gain from at least some compositional rotation. Hence, I propose to regard the

persistence of social interaction as constituting social capital whether that persistence is compositional or structural. An increase in the stock of social capital occurs if there is a long-term change in the amount of social interaction. An example of structural persistence is location. The villagization program in Tanzania in the 1970s might have permanently increased social interaction by reducing the distance between households, facilitating the formation of social capital.

The most obvious way in which social interaction can have persistent effects even if it is not itself persistent is if it induces investment in physical capital. Suppose that a village community organizes itself collectively to buy a bus or to build a school. There is a clear economic benefit as a result of social interaction. How should this be treated? The bus and the school are not social capital: they will already be recorded in the capital stock. Putnam is not arguing that they should be reassigned from the physical capital stock to the social capital stock. However, social interaction has in this case had a clear and persistent economic benefit. The social capital is the value of overcoming the externality known as the 'free-rider' problem in the village: everyone wants there to be a bus, or a school, but nobody wants to help purchase it. Yet (let us suppose) the economic return on them is higher than that on other assets. The collective action enables this higher return to be realized. The value of the collective action is the present value of this incremental stream of benefits and this is the social capital of the village community.

More generally,

$$(2) \quad V = v(\text{SI}, L, K)$$

The bus uses K, and the school uses both L and K. These conventional inputs are not to be counted as social capital. Social capital is the contribution of social interaction (SI) to V. The social value of SI is the surplus of the return on SI once the cost of the other inputs has been met. Whether this stream of returns can be turned into a present value and hence meaningfully valued as social capital depends upon whether the stream is intrinsically persistent.

The other ways in which social interaction can have permanent effects even if it is not itself permanent are analogous to that via investment in physical capital. Instead of being stored in physical capital the effects of SI can be stored in human capital: for example, if SI leads to an increase in the stock of knowledge then it will be persistent even if the SI ceases. A further possibility is for the effects of SI to be stored directly in another form of social capital. For example, even if the choir collapses, the norm of trust which it has built up is itself persistent. The choir is the SI, whereas trust is the output and it happens to be durable.

Norms do not need to have moral content to be social capital. For example, the coordination of buyers and sellers into a market with a specific time and location may initially involve collective action. Thereafter, it may be persistent even if the organization for collective action is removed: people simply continue to expect that there will be a market at the same time and place. Similarly, Tirole (1996) shows how expectations about honest or opportunistic behavior may be persistent.

Classifying Social Capital

Social capital can be classified by distinguishing the forms of social interaction, the particular type of externality which is being generated, and the mechanisms which induce it to be generated. I briefly set out this classification, explaining it more fully in subsequent sections.

The simplest form of social interaction scarcely deserves the name since it involves only a one-way relationship. However, since it can have all the other characteristics of social capital it is appropriate to include it. The most 'primitive' form of one-way social interaction is observation: one agent watches another and learns as a result (even if the motive for the observation was nosy curiosity rather than economic advancement). One-way interaction can also characterize highly sophisticated forms of social interaction, notably hierarchies: the youth defers to the kin group elder, while the elder ostentatiously ignores the youth. The other form of social interaction is reciprocal. This is the nature of both networks and clubs. A network is a 'spontaneous free association' of agents, whereas a club has an organizational form and a defined membership. For example, the 'grapevine' by which a firm picks up the gossip on other firms, thereby discovering which are reputable, does not have a capacity for collective decision, nor is there a defined 'network membership': each firm is linked to some other firms in a continuous chain. Nevertheless, it generates an externality by reducing opportunism. By contrast, hierarchies and clubs, being organizations, have the capacity for group decisions. This capacity is lacking in observation and networks. Generally, the two higher-order forms of SI, hierarchies and clubs, each contain their lower-order counterpart: a hierarchy will also enable observation, and a club will enable networking. They are equivalent to their lower-order counterpart with the addition of the capacity for group decision. It is useful to denote these four forms of SI by subscripts: SI_o , SI_h , SI_n , and SI_c .

There are three types of externalities generated by social interaction. Two of these are knowledge externalities, but they are so different that it is worth keeping them distinct, namely knowledge about the behavior of other agents, and knowledge about the non-behavioral environment. Sharing knowledge about the behavior of other agents lowers the danger of opportunistic behavior and so reduces transactions costs (in Table 1, below, this externality is referred to as opportunism). Sharing knowledge about the non-behavioral world, such as prices and technologies, is the very stuff of the new growth economics (in Table 1 this externality is referred to simply as knowledge). The third externality is the benefits of collective action which, where it succeeds, overcomes the free-rider problem. For example, collective action might enable sanctions against opportunism, rules for the management of common pool resources, the provision of public goods, and the reaping of scale economies such as insurance and ROSCAs.

To summarize, social capital is first a subset of the processes which generate externalities, namely, those which are generated by social interaction. It is then a subset of these social interactions, including only those which either are themselves durable or the effects of which are durable.

Table 1: A Classification of Social Capital

Externality	SI-durable		Effects-durable	
	One-way	Reciprocal	One-way	Reciprocal
Knowledge	teaching	networks	copying	pooling
Opportunism	repeat trade	networks	trust	gossip > reputation
Free-Riding	authorities	clubs	deference	norms, rules, coordination

The same social interaction might meet both criteria for social capital. That is, it might be a durable form of interaction and the effects might be durable. Putnam's choirs are both durable forms of SI and work by building trust, which is itself a durable effect, so that even if the choirs were to be dissolved, the trust would continue.

A good question to test a definition of social capital is whether trust is on the lefthand or righthand side of any social capital equation. Fukuyama (1995) treats it as a RHS variable, explaining transactions costs; Putnam (1993) and Barr (1996) treat it as a LHS variable, explained by social interaction. In the above classification it is an intermediate variable, produced by SI and producing a reduction in transactions costs, but its durability gives it the property of capital:

(3) Transactions costs $f(\text{trust})$

(4) trust $f(\text{SI})$

This is the basic structure when the effects are durable: SI is a flow which generates stocks of inputs into the production process such as trust, knowledge and norms.

HOW SOCIAL INTERACTION GENERATES DURABLE EXTERNALITIES

I now turn to a more detailed analysis of how SI raises V . It is useful to distinguish the three externalities as learning about the world (V_k), learning about the reliability of other agents (V_a), and the capacity for coordinated action (V_c). The first two correspond to social learning.

Learning About the World

Learning to take better allocative decisions can come about through SI in two ways, copying and pooling. With copying, there is a hierarchy of knowledgeable agents, and agents lower down the hierarchy copy those higher up, thereby improving their decisions. With pooling, there is no one 'best-informed' agent who has encompassing knowledge. Rather, different agents have different packets of knowledge, and pooling enables all agents to improve on their decisions.

Copying can occur through one-way SI, whereas pooling requires reciprocity. One-way SI and reciprocal SI require somewhat different inputs and so face different costs. One-way SI requires that the agents with the most information be highly observable to those lower down. Copiers will also need to reassure themselves that those who they copy are sufficiently similar in economic circumstances to themselves. Reciprocal SI requires meetings and good communications technology, such as phones. For example, copying is easy in a village of similar people where one agent gets a knowledge advantage for whatever reason. It is precisely this high incidence of knowledge free-riding in peasant agriculture which inhibits peasant innovation, so that the impetus for research needs to come from outside. There is most to be gained from copying when there is a large difference between the efficiency frontier and the mean producer.

Knowledge pooling is most beneficial when each agent has very different knowledge. For this it is better if agents differ from each other. It is not now a matter of copying decisions, but of exchanging information which may be put to differing uses by different agents. We might expect that villages are better for copying than for pooling. Copying is intrinsically subject to ripple effects because it depends upon people being able to see others comparable to themselves, whereas pooling will follow the information highways.

Both copying and pooling are intrinsically durable because they add to the stock of knowledge. Memory sustains knowledge even if the flow of copying and pooling ceases. However, since the knowledge frontier keeps advancing, it is more valuable to have a period of recent copying than the same duration of copying in the past. The SIs which give rise to copying and pooling may or may not be durable.

Pooling depends upon having a diverse network, and upon the echoes from further layers of networks (Barr, 1996). Clubs and hierarchical SIs can contribute to pooling but probably only because each is also a network. Their additional structures over a network may actually be disadvantageous for information pooling, since clubs will tend to admit agents who are similar to each other, so reducing

diversity compared to open access networks, while hierarchies will have problems in reciprocal flows of information, since those lower down the hierarchy have an incentive to mislead those above.

Formally,

$$(5) \quad V_k = V_k(\text{copying, pooling})$$

$$(6) \quad \text{copying} = c(SI_o, SI_n, SI_c, SI_h)$$

$$(7) \quad \text{pooling} = p(SI_n, SI_c)$$

When we come to consider social capital as endogenous, the essential information will be on the costs which are faced in the different forms of social interaction. The costs of copying are the costs of observation; the costs of pooling are the costs of communication.

The importance of knowledge sharing through social interaction depends upon how much knowledge there is to share, and upon the availability of substitute mechanisms such as newspapers and the formal educational system.

Learning about the Reliability of Other Agents

The transactions cost literature emphasizes the importance of knowledge about whether other agents are reliable. Again, both one-way SI and reciprocal SI add to information about other agents. The one-way SI used by many firms in Africa is repeat transactions (Fafchamps, 1997). Repeat transactions enables a promise-trust relationship to build up through providing an incentive for honesty. I describe repeat transactions as a one way flow of information since the nature of the transaction may repeatedly place all the risk on one side of the transaction, for example, a purchaser may always receive credit and have no risk exposure to the supplier.

The reciprocal SI which provides knowledge about reliability is the network. It achieves this through gossip which assigns and updates a reputation for each agent known to the network. We can think of reputation as the pooling of information on promise-trust relationships. As Barr argues, the sort of one-way SI suitable for promise-trust relationships is much more restricted than that needed for copying. Similarly, the sort of reciprocal SI suitable for reputation is very different from that suitable for learning about the world. Whereas the latter requires diversity, the former requires that agents in the network are sufficiently similar to know the same people, essentially, each other, and to have similar trading relationships.

Formally,

$$(8) \quad V_a = V_a(\text{trust, reputation})$$

$$(9) \quad \text{trust} = t(SI_o, SI_n, SI_c, SI_h)$$

$$(10) \quad \text{reputation} = r(SI_n, SI_c)$$

How important agent knowledge is depends partly upon the substitutes and partly upon the alibis for opportunism. For example, where transport is poor or there is civil war then agents have plausible excuses for default on promises. There is then a greater premium upon counter-action. The substitutes for information through the network are information through the market, notably credit-rating agencies, and non-information means of enforcement, notably the courts and social sanctions. The latter can be produced by a different type of SC, namely collective action.

Posner (1980) argues that the traditional SIs of the village and the kin group provide a near-complete amount of information about other agents, due to a high-observability environment, so that the problems of asymmetric information are overcome. Collier and Gunning (1999) contrast this with the modern African economy, arguing that faces much more severe moral hazard problems.

Collective Action

SI produces coordinated action in various ways, however, a useful distinction is between those which produce coordination spontaneously, and those which produce it as a result of conscious decisions. The former process is via the construction of norms and related priors. Socio-biology explains how a predisposition towards moral conduct can occur through natural selection. Gambetta (1993) discusses how a norm of distrust persists in Sicily, passed on by one way SI. Tirole (1996) discusses how norms of both trust and distrust can persist through one way SI, namely that the priors formed about new entrants are influenced by the behavior of the initial stock of agents. Norms of coordination need have no moral content. For example, for everyone to go to a particular location to market, and or to work Monday through Friday, may require no centralized decision either to originate or to persist.

Again we have a process in which persistence is achieved through the durability of the effect (the norm, the prior), while the development of the norm and the prior is achieved through SI (one way, and reciprocal). Hence, the stock of social capital is represented by the norms and priors, although it is produced by the flow of SI:

$$(11) \quad V_c = V_c(\text{norms, priors}) = V_c(SI_n, SI_o, SI_h, SI_c)$$

However, much other coordinated action requires some process of collective decision, and this in turn requires either an accepted hierarchy or a club, rather than just a network or one-way SI. Although clubs and hierarchical organizations may assist in the formation of norms and priors, this is because they double-up as networks and one-way SI. Their distinctive contribution is rules and active allocative decisions. It is likely that the persistence of these forms of coordination is dependent upon the persistence of the SI institutions which generate them. As a club weakens its social capital probably falls. That is, formally, this sort of social capital is dependent upon the current state of the SI which generates it, rather than upon its past:

$$(12) \quad V_c = V_c(\text{rules, decisions}) = V_c(SI_h, SI_c)$$

The capacity for coordinated actions raises V in four ways. First, it introduces social sanctions against opportunism, thereby lowering transactions costs. Secondly, it enables the management of

common pool resources. Thirdly, it enables the provision of public goods. Finally, it enables economies of scale to be reaped in non-market activities.

The importance of coordinated action through SI depends upon its substitutes. Both governments and firms provide alternative mechanisms for coordination. Further, as transactions costs fall, many activities switch from being dependent upon non-market allocation mechanisms to market mechanisms, perhaps the most important example being the provision of support in old age. In effect, market institutions gradually solve the problems posed by externalities. In the above schema the need for social capital diminishes as the market becomes capable of performing a wider scope of activities. In Africa, where firms and governments are weak, and where transactions costs are high, there is more need for coordination through SI than elsewhere.

Summary

I have distinguished between four types of SI, according to the matrix one-way - reciprocal; spontaneous - organized. One-way spontaneous SI is, for example, the observation of one agent by another, or the repeat of purchases from one agent by another. A reciprocal spontaneous SI is a network. A one-way SI which is organized is a hierarchy, and a reciprocal organization which is organized is a club. Both reciprocal types of SI also perform one-way SI. Organized SI also performs unorganized SI: a club is also a network. In this classification of the types of SI, I place less emphasis upon whether the interaction is 'horizontal' or 'vertical' than in the original work by Putnam: hierarchies are 'vertical', while clubs are 'horizontal', but both are forms of SI which potentially generate social capital. I have classified hierarchies as one-way interaction to capture the notion that because of a power relationship interaction is not fully reciprocal. Offsetting this, hierarchies probably have a greater capacity than clubs for collective action. Which is more efficacious, and indeed, whether there is an important distinction to be drawn between them, is an empirical matter.

I have distinguished between three externalities which SI can generate and so reap income which would otherwise be lost, (V). It can generate knowledge externalities, V_k . It can reduce opportunism by providing information about the reliability of other agents, V_a . It can facilitate coordination, V_c .

I have distinguished between six *mechanisms* whereby SI generates these externalities. Knowledge externalities can be generated through copying and pooling. Opportunism can be reduced by trust, generated by repeat transactions, and by the construction of reputations through gossip. Copying and repeat transactions need only one-way informal SI, pooling and gossip need networks. Free-riding can be overcome through norms and rules. The former can be generated by informal SI, the latter only by organized SI.

SI generates social *capital* if the benefits are persistent. This occurs if either the effect is persistent, or if the SI itself has features which make it persistent. Knowledge externalities are automatically persistent because they get stored in memory. This applies both to knowledge about the world, and knowledge about the behavior of other agents. Those mechanisms for the reduction in free-riding which depend upon spontaneous SI are persistent, whereas those which depend upon organized SI are not, and so the benefits persist only for the duration of the SI. In this last case the stock of SC is

therefore a function of the current set of formal institutions of SI, whereas in the other cases it is, at least to an extent, a function of the integral of past SI (in effect, norms depreciate more slowly than rules if the SI which generated them is removed).

Formally,

$$(13) \quad V = V_k + V_a + V_c$$

$$(14) \quad V_k = V_k(\text{copying, pooling})$$

$$(15) \quad \text{copying} = c(SI_o, SI_n, SI_c, SI_h)$$

$$(16) \quad \text{pooling} = p(SI_n, SI_c)$$

$$(17) \quad V_a = V_a(\text{trust, reputation})$$

$$(18) \quad \text{trust} = t(SI_o, SI_n, SI_c, SI_h)$$

$$(19) \quad \text{reputation} = r(SI_n, SI_c)$$

$$(20) \quad V_c = V_c(\text{norms, rules})$$

$$(21) \quad \text{norms} = n(SI_o, SI_n, SI_c, SI_h)$$

$$(22) \quad \text{rules} = r(SI_h, SI_c)$$

The building blocks of the analysis are thus the three externalities, the four types of social interaction, and the six mechanisms. The reduced form is:

$$(23) \quad V = V(SI_o, SI_n, SI_h, SI_c)$$

Note that opportunism can be tackled by trust, reputation, norms and social sanction. The last of these requires overcoming the free-rider problem of collective action and so requires a different type of social capital. Trust is on this analysis a very slippery concept. I have applied it to the very narrow context of the confidence generated by repeat transactions (we can imagine the purchaser promising and the seller trusting the promise). I have distinguished reputation from this one-on-one relationship, as something which circulates in the business community. D learns that A and B both have promise-trust bilateral relations with C. This gives C a reputation with D who relies on it to do a deal, despite not himself having a promise-trust relationship with C. There can also be a norm of trust in a society and this itself reduces opportunism. This is what is measured in the attitudinal surveys.

ENDOGENISING SOCIAL CAPITAL

Isham, Kaufmann and Pritchett (1995) show that the return on projects is higher when there is more civil liberty. The interpretation they give to this, with some supporting evidence, is that a free environment is more conducive to the lobbying pressure of social capital. This result suggests that it should be possible to endogenise social capital, and this is indeed the most important step for policy purposes. It is useful to establish that, and to what extent, social capital is productive, but the key step is how to induce it. For example, Knack and Keefer (1997) find that trust is greater in societies with more equal incomes and with better educated and more ethnically homogenous populations. However, the obvious way of endogenising social capital is to explain it in terms of the costs of social interaction. The costs of social interaction are the political penalties against its formation, and the financial costs of communication.

Hence, at a highly aggregate level we might suppose that the stock of social capital is a function of civil liberties, the telephone density, ethno-linguistic fractionalization (ELF), and population density (proxying the distance between agents). I illustrate this in the regression below in which trust, as measured in comparable attitudinal surveys, is the dependent variable. I exclude civil liberties because of potential problems of endogeneity.

The results are encouraging for an apparently soft attitudinal question such as trust. The telephone network is both highly significant and powerful. However, the telephone density is endogenous to social interaction: the more social interaction, the more do people need phones, and the utility of a phone is not just dependent upon its price but upon how many other agents are on the phone. Population density, as a quadratic, is also important. A society with a very high population density (412) as compared with one with the least trust-conducive density (202) has an 18.5 higher score on the trust index. Very low population density environments are also conducive to trust, perhaps because there is less contest for resources. The effect of ethnic diversity is negative but not quite significant.

Table 2. Trust Regressed on the Costs of Social Interaction

Variable	Coefficient	T-statistic
constant	-50.11	-3.27
ELF	-0.14	-1.25
LnTelephones	16.35	6.22
Pop.density	-0.18	3.01
Pop.density.squ.	0.00043	2.92

n = 23

Adjusted R² = 0.62

F = 10.11

Trust = range = 6.4 - 66.1

ELF = ethno-linguistic fractionalization, scaled 0-100

LnTelephones = the natural log of telephones per worker, range 4.4-7.1

Pop.density = population density as of 1985 (and its square), range 2.3 - 412.1

Overall, these results suggest that it may well be possible empirically to quantify the endogeneity of social capital to the policy environment.

DISAGGREGATING INTO GOVERNMENT AND CIVIL SOCIAL CAPITAL

The broadest definition of social capital includes government. This is consistent with the above analysis since the contribution of government to income is to realise benefits which would not be achieved through the market, and these benefits will be durable because government is itself durable. Government is a hierarchical non-market organization; indeed, it is much the most important such organization in most societies (kin groups and families would be alternative contenders). However, precisely because it is so dominant it is probably best to keep it distinct from that part of SI which is purely civil society. Government is a system of internally self-enforcing rules, a part of which includes provision for the use of force. Civil society SI might be defined as those forms of SI which are not directly dependent upon this government rule system.

Consider the three externalities in turn. Government is an important solution to the problem of free riding. With the power of coercion, government achieves collective action, most notably through taxation, enabling the delivery of public goods and the management of common pool resources on a far larger scale than would otherwise be possible. Government policies obviously attempt to generate knowledge externalities through education, extension and training. Government also addresses opportunism through commercial and criminal law.

Civil society achieves these effects without direct recourse to government powers of coercion, although indirectly, civil institutions will depend upon government in many ways. Some of these effects are intrinsically better achieved by civil society than by government. For example, the pooling of business knowledge is a more efficient way for firms to learn than education by government, which itself often lacks good access to pertinent knowledge. Indeed, government-supplied education may be a complement rather than a substitute, increasing the returns to information pooling, since education is sufficiently specialised that people learn different information. Other effects are intrinsically better achieved by government: exclusive reliance upon networks and clubs for contract enforcement may inefficiently limit the scope of transactions. Civil society social capital and government social capital can be both substitutes and complements. Since the efficiency of substitution differs, as the provision of government social capital increases, the composition of civil society social capital will change (to the extent that it is an endogenous response to economic needs). The most important example of this is probably the transition from kin group insurance and intergenerational transfers to government insurance and pensions. More generally, as Barr suggests, there is probably a transition from morality-supplying civil social capital to information-supplying civil social capital.

In aggregate, the substitution between civil and government SC can be stated as:

$$(24) \quad V = v(SC_c, SC_g)$$

Potentially, these substitutions can be measured. For example, in the RPED surveys there might be evidence for links between the quality of the courts (on which there is international ratings evidence), the proportion of disputes which are settled through the courts (on which RPED has evidence), and the reliance upon networks and clubs for contract enforcement (on which there is RPED evidence).

MEASURING CIVIL SOCIAL CAPITAL AND ITS EFFECTS AT THE MICRO-LEVEL

The above analysis remains at a high level of generality. In measuring social capital, in principle we should measure each of the four types, and get the integral of the two unorganised types. Alternatively, or additionally, the six mechanisms can be measured, or the extent to which each of the three types of economic benefit are generated. Micro-level evidence is best suited to measure the mechanisms by which SI has its effects, and the stock of each type of social interaction. Macro-level evidence, to which I turn later, is better suited to measure the effects themselves.

With micro-level evidence the data is about one or other type of agent. I will focus on the social capital for rural households and for manufacturing firms.

One-way SI

Consider, first, how it might be possible to measure the extent to which one-way social interactions augment knowledge through copying, and augment trust.

One-way SI among rural households can be proxied by the distance between holdings, which in turn might be proxied by population density. A low population density would reduce the amount of interaction (by raising its cost, as in Tiffin, et al., 1994). The hypothesis would be that diffusion would be faster in areas with higher population density, so that they would on average be closer to the efficiency frontier.

Copying has also been estimated directly. Besley and Case (1993) model it in Indonesian agricultural innovation. Jones (1997) models it in Ethiopian household decisions about primary education. She shows that there is an externality from the decision of a household to send a child to school because other households copy, possibly because they infer that the returns to education are higher. Burger et al. (1996) model it in Kenyan agriculture where they find evidence of gender segmentation: women copy women, and men copy men. In these studies the social interaction is implicit: spatial proximity is the proxy for interaction in the first two studies, gender-based association is implicit in the third.

The Narayan and Pritchett (1996) study measures the extent of village clubs. It finds evidence for a link from this form of social capital to agricultural innovation. Recall that a club contains all the SI of both a network and one-way SI. Clubs also do much more, but these additional capacities are not, on the above analysis, important for knowledge diffusion.

We do not yet have a study which directly measures all the SI pertinent for copying and then links it to knowledge.

In peasant agriculture the anthropological evidence on one-way SI and trust is summarised by Posner (1980) whose thesis is that traditional peasant social structures are efficient responses to the problems of opportunism and free-riding, partly by creating high observability and repeated transactions.

For firms one-way SI can be proxied by the number of repeat transactions. This can be approximated by the turnover of the firm times the proportion of transactions which are repeat transactions. In the face of high opportunism firms confine themselves to repeat transactions. For example, in Uganda during the early 1980s (at which time the society was rated the riskiest in the world on the Institutional Investor scale), one of the main banks refrained from taking on any new clients in a whole year: all its business was repeats. The bank was attempting to accumulate trust social capital because norm and rule social capital, and non-SC means of contract enforcement were all in radical decline. The RPED surveys generally pick up a high incidence of repeat transactions among manufacturing firms (Fafchamps, 1997). There may be enough data in RPED to quantify the link from repeat transactions to the reduction in default costs.

Networks and Pooling

Networks can be measured and sometimes have been. Barr shows how various attributes of the network of the firm affects its productivity, and values the network. This and Narayan Pritchett are the studies which go all the way to valuing at least a component of SC. Knowledge pooling is the most reasonable interpretation of this effect. Biggs (1996) reports convincing evidence on the use of the network for reputation purposes although the relationship is not quantified.

Clubs and Hierarchies and Collective Action

Clubs are the easiest aspect of SC to measure are they are the component which Putnam focuses on. For businesses clubs there is evidence (e.g. Greif) of their use in social sanctions to lower the cost of transactions enforcement. In peasant agriculture Posner (1980) argues that the kin group (sometimes taking the form of a hierarchy, sometimes a club) is a mechanism for collective action. For example, by having a rule of automatic membership it avoids the self-selection problems of its central activity, insurance. Widner has attempted to measure rural club-type capital and link it to collective action. Narayan and Pritchett do a similar thing, finding that the quality of schools is linked to the stock of club-type SI.

Trust is also measured directly in international attitudinal surveys. What is measured is trust as a norm. There is also recent work showing that trust is associated with growth (Murphy et al., 1996). However, trust as a norm is an intermediate variable, and ideally it would be treated as a dependent variable of SI. This has not yet been done although there may now be enough measures to proxy SI internationally.

Finally, there is indirect evidence from Isham et al. that the rate of return on projects is higher in an environment of civil liberties and public protest. This shows that collective action works to improve public sector performance. Presumably, what is happening is that as the costs of protest are reduced, the amount of protest increases and so performance improves.

AGGREGATE MEASURES OF CIVIL SOCIAL CAPITAL

I now consider how national level data can be used to quantify civil social capital. I distinguish between the three externalities which SI addresses, opportunism, knowledge and coordination.

An observable proxy measure of opportunism is trust. However, consider whether trust and government social capital should be substitutes. If government enforcement mechanisms are working well then agents need not invest so much in building trust. Empirically, however, it is most unlikely that good government enforcement mechanisms induce substitution to the extent that trust is reduced. Why is this? It is presumably because of two reverse direction relationships. First, trust facilitates collective action, including effective government, and secondly, effective government induces trust. To correct for this we would need to instrument for trust using indicators which did not include effective government (the above regression for trust more or less does this). The prediction would be that, thus instrumented, there would be a trade-off because with effective government people would need to devote fewer resources to trust-building. A further problem is that people may trust others to behave well because of the effectiveness of the courts. It is a priori ambiguous whether people describe a situation in which they anticipate contract compliance because of the efficacy of the courts as one in which *people* are trusted, or one in which trust in the courts makes it unnecessary to trust people. Knack and Keefer (1997) find that trust is positively related to independence of the courts, but negatively related to the number of lawyers. Thus:

$$(25) \quad \text{trust} = t(\text{liberty, ELF, phones, density, courts, lawyers})$$

More generally, because collective action is facilitated by trust, the cost of government social capital is a function of the stock of civil society social capital. Thus, if we can instrument civil society social capital by its costs, then government social capital should be a function of it.

Another measure of opportunism is the BERI index of security of property rights. Hence, trust, and property rights can be treated as the dependent variables, as functions of the independent variables, with the first four proxying the costs of civil SI. The resulting coefficients can be used to instrument for opportunism-reducing civil SI in a growth regression.

The generation of knowledge through civil social capital depends upon copying and pooling. Again we need proxies for the LHS and RHS variables, this time, knowledge and the SI which induces it. The LHS can be thought of as how well a society utilizes its individual investments in knowledge. A good proxy for these individual investments is the stock of education. Hence, there should be some significant interaction between SI and the stock of education, in a growth regression. The interaction term then values the SI. The remaining problem is the RHS variables. A reasonable speculation is that knowledge SI is less dependent upon clubs and authorities than is transactions cost SI. This is because

the mechanisms, copying and pooling, do not require collective action. The RHS variables can therefore be reduced to eliminate those which support collective action, namely liberty, ELF and courts. This is not to say that clubs and authorities might not induce copying and pooling, from the Narayan and Pritchett evidence, they clearly do. However, on the previous argument, this is because clubs and authorities also perform lower-level SI functions. This leaves the pure costs of communication as determining the SI which induces copying and pooling, namely phones and distance. Hence, into a standard growth regression would be added:

$$(26) \quad \text{growth} = f(\text{education} * \{\text{phones} + \text{population density}\}, \dots)$$

This attempts to quantify the value of knowledge-augmenting civil SI.

The remaining externality of civil SI is coordination. We need to measure both the contribution of coordination to growth, and the stock of coordination-inducing civil SI. The main function of collective action is the provision of public goods. However, the main channel by which these are delivered is through the government. Further, since public goods are directly productive, they cannot be used as a proxy for the capacity of civil society to act collectively. However, we know from more micro evidence that the collective action of civil society improves the efficiency of public expenditure (Alesina et al. (1997), Isham et al. (1995)). Hence, in a growth regression, there should be a significant interaction effect between public expenditure and the capacity of civil society to organise for collective action. We next need to measure the SI which induces coordination. The SI which induces coordination is much more dependent upon clubs and authorities than the other forms of SI. Civil collective action is assisted by liberty and by trust. Trust is also valuable in reducing opportunism, and this will also improve public sector performance. Hence, to an extent the test measures a composite of the capacity for collective action and reduced opportunism to improve the efficiency of public expenditure. By also including government expenditure, liberty and trust as individual explanatory variables, we control for any other effects these might have. The structure to be tested is therefore:

$$(27) \quad \text{growth} = g(\text{public expenditure} * \{\text{trust} + \text{liberty}\}; \text{public expenditure}; \text{trust}; \text{liberty} \dots)$$

It is thus possible to test for each of the three potential effects of civil SI.

By introducing terms in a growth regression we get not only a contribution of each component of SI to growth, but also a measure of the valuation of social capital. First, we can measure the equivalent growth effect from investment, so that we have a conversion from SI into physical capital. Secondly, the standard empirical growth regression can be transformed to derive the long run level of income to which the economy is approaching. Part of the differences between these steady-state incomes levels for different countries are then attributable to the measured differences in social capital. This is, in effect, a measure of V.

WHEN IS SOCIAL CAPITAL DAMAGING?

One theme in the social capital literature is that not all social capital is good. The control of free-riding by clubs and hierarchies can produce rent-seeking like the Mafia, as well as increasing the supply of public goods. Copying may spread criminality as well as new agricultural technologies.

There is nothing special here about social capital, for the same is true of all the factors of production. Capital and labor can be put to bad uses as well as to good. However, the fact that income is positive implies that on average factors of production are put to good uses rather than to bad and there is no reason to expect that this is different for social capital. Further, when the effects on income are detrimental this is not usually attributable to some specific type of social capital, any more than it is to any specific type of physical capital, but rather to the use to which it is being put. The same association of manufacturers which pools information and lobbies the government for a more reliable electricity supply also lobbies the government for protection. Where an activity is profitable resources will be invested in it and the control of rent-seeking should focus on its incentive structure.

However, there is some rationale to studying the social capital involved in income-reducing activities because sometimes policy intervention may be more effective in undermining the needed social capital than in changing other aspects of the incentive structure. I give four examples.

Tirole (1996) shows how opportunism can be persistent in a group. The full history of the behavior of each agent is only partially known by other agents and so, in estimating his honesty they make inferences from the behavior of others deemed to be in the same group. If all agents in the group are expected to behave dishonestly, they have little incentive to do otherwise. However, this suggests a way of breaking out of the problem. If a sub-group is provided with both a readily distinguishable separate identity, then a coordinated and publicized change in the incentive regime for them may tilt the balance of advantage to honesty for the sub-group. Members of the sub-group are no longer automatically contaminated by their association with the larger group. If the sub-group is then gradually expanded by the entry of the rest of the group, each new entrant in effect changes identity. This would be the theory behind the reform of civil services by the creation of ringfenced elite groups with higher pay. Similarly, the creation of initially small professional associations with clear standards of conduct and entry requirements can gradually raise standards in a profession.

Gambetta (1995) analyses how the Mafia works. His thesis is that the Mafia does not depend upon mystical norms of distrust, violence and secrecy embedded deep in the culture of Sicily. Rather, he argues that the core business of the Mafia is the supply of protection and contract enforcement. The Mafia is, paradoxically, a supplier of civil social capital. Unfortunately, in the process it destroys a lot of other social capital, because its method of supply requires both force and a monopoly of information (a by-product of which is secrecy). Competition within the Mafia for the supply of protection then produces a high level of violence, and a high level of contract default leading to distrust. If this is correct, then the state can undermine the Mafia not only by pursuing its criminal activities but by competing with it to supply cheaper protection and enforcement.

A third example of negative social capital is the effect of kin groups in the formal sector labor market. In the traditional economy kin groups are valuable social capital, in effect enforcing bonds of reciprocal obligation which enable the supply of insurance and pension services. However, in the modern sector labor market the same bonds of obligation become used by job seekers and workers to extract patronage from managers. Collier and Garg (1999) show that in Ghana the private sector counters this, presumably because of the pressures of competition, whereas in the public sector there is a 25% wage premium for those workers who are members of the locally dominant kin groups, controlling for employee characteristics. Since in the traditional economy the kin groups are supplying valuable economic services the appropriate policy response is not to weaken the kin groups but rather for the public sector to adopt rules of hiring and promotion which are transparent, where possible using the same practices of individual wage determination as in the private sector.

A fourth example of social capital being dysfunctional is the relationship between ethnic diversity and civil war. It is often supposed that 'ethnic diversity may lead to increased civil strife' (World Bank, 1997, pp. 88-89). However, this is not the case, the actual relationship is an inverse-U, with the most ethnically diverse societies even safer than ethnically homogenous societies (Collier and Hoeffler, 1998). The reason for this is that the organization of a rebellion requires a high degree of collective action among those who are disaffected with the government. The coordination of disaffection is aided when there are two ethnic groups in society rather than one, because, if the government is disproportionately identified with one of the ethnic groups, potential rebels can more easily identify as a collectivity distinct from the government. However, as ethnic diversity increases, the disaffected become composed of many ethnic groups and so face mounting difficulties of coordination. In effect, for the purposes of rebellion, the (negative) value of social capital peaks when there is a moderate amount of ethnic diversity, and falls as diversity increases beyond that level. African countries have, on average, a very high degree of ethnic diversity. While this increases the difficulties of collective action, this applies to all activities, good and bad. Since rebellion is intensive in the capacity for collective action, Africa's diversity makes it relatively safe from civil war. That it has a high incidence of civil war despite this is because the major cause of civil war is poverty: Africa has no higher incidence of civil war than expected given its level of poverty (Collier and Hoeffler, 1998a). A policy implication of this is that in Africa 'ethnic cleansing' is unlikely to be effective in reducing civil war and is indeed on average more likely to increase it. Africa is in the range in which such reductions in diversity would increase the risk of civil war, and conversely, where further increases in diversity (such as might be produced by federation) would reduce the risk of civil war.

PUBLIC ACTION AND SOCIAL CAPITAL

By definition, the supply of civil social capital is non-optimal since its creation and its effects involve externalities. In the more usual case where the effects are beneficial there will be a problem of under-supply. How should the government respond to this under-provision? There are two types of response, both more or less appropriate depending upon the costs. The first is to supply government social capital as a substitute for civil social capital, and the second is to promote civil social capital.

The clearest externality in which civil and government social capital are substitutes is in the reduction of opportunism. The weaker is civil social capital the better should be the courts and other substitutes such as penalties for dishonored checks. Sometimes the government intervention should be to internalize by the creation of property rights: land titling and fencing is an alternative to norms for the management of rangeland; secure financial assets are an alternative to inter-temporal kinship obligations.

The promotion of civil social capital is largely a matter of lowering its costs. The most obvious cost, discussed above, is the telephone system and more generally the cost of transport. Africa has very high costs of telephones, including poor quality, compared with other regions and to date the telephone system has been almost entirely public and subject to very high implicit taxes. A second cost of civil social capital is political repression. Governments have penalized free association, seeing it as a threat to government control.

SOCIAL CAPITAL AND POVERTY

I now turn from how social capital affects growth to how it affects poverty. Obviously, there is a reasonable presumption (and evidence) that growth will reduce poverty. However, is it possible to be more specific? One general feature is that the poor have a lower opportunity cost of time and a lower stock of financial and physical capital than the rich. Since social interaction is time-intensive, and since social capital can often substitute for private capital, the poor may choose to rely more upon social capital than the better off. However, there are sometimes countervailing considerations. To see this, I return to the three types of externality, each with its two mechanisms.

Consider, first, the generation of knowledge externalities. The mechanisms are copying and pooling, and the key forms of social interaction for them are one-way informal SI and networks.

Copying has one obvious feature which tends to make it distributionally progressive: those with the most knowledge will tend to have higher incomes, and this is indeed the inducement for others to copy. Hence, copying can be expected to be powerfully poverty-reducing. There may, however, be barriers to the poor copying those with higher incomes. Burger et al. (1996) find that in Kenyan agriculture female-headed households do not copy male-headed households. Such limits to copying may not indicate the segmentation of information, since if agents are sufficiently different it would be unwise to copy their decisions. However, where the lack of copying corresponds to an obvious segmentation in social interaction, it is reasonable to infer that information is not flowing well. A similar barrier to the flow of information would be language or ethnicity. Potentially, these might produce substantial income disparities between identifiable social groups which, in turn, might be socially disruptive. There has been some work on ethnic differences in social capital. Similarly, the spatial concentration of copying can reinforce spatial differences in incomes.

Pooling has more potential to be regressive, because it is intrinsically reciprocal. The membership of a network will tend towards those with similar amounts of knowledge (though each with different knowledge). Those with a lot of knowledge will simply find it more advantageous to pool with others who also have a lot of knowledge. Treating this similar knowledgeability aspect as a constraint upon which networks an agent can join, the incentive to join an information network is greater the greater the amount of information in the network. Hence, those with little knowledge to share are confined to networking with others with little knowledge and so have less incentive to do so than those with large amounts of knowledge. Pooling is therefore regressive in two ways: the more knowledgeable will have larger networks, and the information gain from each contact in the network will be larger. In effect, pooling introduces an exponent term onto private knowledge. There is a tendency to the social exclusion of the poor built into private incentives to pool knowledge.

The second externality is the reduction in opportunism. The mechanisms are repeat transactions, and reputation. Repeat transactions have the effect of social exclusion to new entrants and so tend to disadvantage the poor. Reputation gears up the gain from repeat transactions. Repeats produce a promise-trust bilateral relationship, and reputation enables those who are in a promise-trust relationship

to access many other transactions. Biggs shows how this disadvantages African-owned firms relative to Asian-owned firms in Kenya.

The third effect is collective action, the mechanisms being norms and rules. Some of these norms and rules apply across the society, for example, Putnam's choirs build trust not just among those who belong to choirs but among the whole population. Such social capital is likely to be proportionately more beneficial to the poor since they are less able to invest in substitutes. For example, an agent is defended against crime both by private expenditures on security and by the norms and rules of society. However, the poor are less able to afford private security expenditures and so are more dependent upon norms and rules. Generally, the victims of crime are disproportionately drawn from the poor, (which probably reflects differential security expenditures), so that the stronger are norms and rules the more the poor gain relatively. Other norms and rules apply only to the group. Thus, the rules of a club may make it an effective agency for increasing the incomes of its members. In general, the poor have more to gain from norms and rules than higher income groups and so have more incentive to join clubs and authorities. For example, in credit transactions social sanction and collateral assets are alternative means of reassuring the lender. Wealthy persons do not need social sanction, whereas the poor do. Similarly, the economies of scale which collective action facilitates are more likely to be otherwise unreachable by the poor: hence the membership of ROSCAs. Bates argues that it is the wealthy who are most tempted to exit from the obligations of kin groups. Finally, if the main cost of membership is time, the poor have an advantage since they face lower costs. There is, however, an offsetting tendency. The creation of clubs and authorities will generally require some leadership and leadership is much more likely to come from agents in higher income groups. They will be more respected, and so face lower costs of initiating collective action, and since initiative will tend to produce both leadership and income, the two will be correlated. If the clubs and authorities necessary for the creation of norms and rules are initiated predominantly by higher income groups, they will both tend to address the problems faced by higher income groups and tend to attract membership from higher income groups. This will especially be the case where the same SI performs the double role of pooling and coordination.

To summarize, the distributional consequences of civil social capital are likely to be mixed. Copying will tend to be progressive, except for barriers of social segmentation; pooling, repeat transactions and reputation will tend to be regressive; and norms and rules will tend to be progressive, except where the concentration of leadership among higher income groups has the effect of marginalising the interests and participation of the poor.

What is the implication for a pro-poor public policy? The different distributional consequences of differing mechanisms suggests that public policy should both promote most heavily those mechanisms which are distributionally most progressive, and should attempt to redress the regressive aspects of the other mechanisms. Thus, the mechanism which most warrants public expenditure on distributional groups is probably the promotion of copying. The redressal of regressive effects of the other mechanisms may be more problematic. The regressive nature of repeat transactions and reputation is probably unavoidable. The most effective public intervention is likely to be to improve the government social capital substitute for opportunism-reducing civil social capital. For example, more effective courts and the strengthening of penalties against dishonored checks, both reduce the need for repeat transactions and reputation. Pooling is also unavoidably regressive. Here the best substitute is

likely to be internalization through creating a market in information. For example, where there is a good financial press the business community is less reliant upon network pooling. More generally, policies which lower the cost of producing newspapers will shift information provision more into a market activity. Similarly, where there are credit-rating agencies, the value of information obtained through the network is reduced: African Kenyans would benefit relative to Asian Kenyans from the introduction of credit-rating agencies. Finally, the formation of clubs and hierarchies I have suggested requires leadership which is likely to come from higher income groups, whereas the benefits of such SI would otherwise accrue most to the poor. Public action may therefore be useful in supplying the initial leadership which establishes collective action SI among the poor.

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